

A. Clean Version Of Amended Portion(s) Of Application

In the Claims

The following are all claims that are to be pending in the above-referenced application as a result of this Response to Office Action. Claims 1 through 27 have been cancelled, and claims 28-127 have been added.

1 ~~28~~. A system for generating a stereoscopic panoramic mosaic image pair comprising:

2 A. a strip generator module configured to generate two series of image strips, all of said image
3 strips in each series comprising strips of a series of images of a scene as would be recorded
4 by a camera from a respective series of positions relative to the scene, the image strips of the
5 respective series representing strips of the respective images displaced from one another by
6 at least one selected displacement; and

7 B. a mosaic image generator module configured to mosaic the respective series of images strips
8 together thereby to construct two panoramic mosaic images, the panoramic mosaic images
9 comprising the stereoscopic panoramic mosaic image pair providing a stereoscopic image
10 of the scene as recorded over the path.

1 ~~29~~. A system as defined in claim ~~28~~ in which the series of positions define a path at least a portion
2 of which corresponds to a curved arc.

1 ~~30~~. A system as defined in claim ~~28~~ in which the series of positions define a path at least a portion
2 of which corresponds to a straight line.

1 ~~31~~. A system as defined in claim ~~28~~ in which the series of positions define a translation relative to
2 the scene.

1 32. A system as defined in claim 28 in which the series of positions define a change in angular
2 orientation relative to the scene.

1 33. A system as defined in claim 28 in which the image strips are parallel to an axis defined for the
2 respective image.

1 34. A system as defined in claim 33 in which the axis is horizontal.

1 35. A system as defined in claim 33 in which the axis is vertical.

1 36. A system as defined in claim 28 in which the strip generator module includes a camera
2 configured to record at least one image strip.

1 37. A system as defined in claim 36 in which the camera is configured to record a plurality of image
2 strips from both series.

1 38. A system as defined in claim 37 in which the strip generator module includes a plurality of
2 cameras configured to record at least image strips from both series, the plurality of cameras being
3 disposed at respective positions along the path.

1 39. A system as defined in claim 36 in which the strip generator module further includes
2 A. a reflector configured to reflect images of the scene to the camera for recording thereby of
3 at least the image strips; and
4 B. a reflector position control module configured to position the reflector at at least one position
5 to facilitate definition of the path.

1 40. A system as defined in claim 39 in which the reflector has at least one flat portion.

1 41. A system as defined in claim 39 in which the reflector has at least one curved portion.

1 42. A system as defined in claim 39 in which the reflector position control module is configured to
2 position the reflector at a plurality of positions to facilitate definition of the path.

1 43. A system as defined in claim 28 in which the strip generator module is configured to generate
2 at least one image strip using a selected computer graphics methodology.

1 44. A system as defined in claim 43 in which the strip generator module is configured to generate
2 a plurality of image strips, at least one of the plurality of image strips being generated using the
3 selected computer graphics methodology.

1 45. A system as defined in claim 28 in which the strip generator module is configured to generate
2 the two series of image strips such that the displacement varies as between at least two images.

1 46. A system as defined in claim 45 in which the strip generator module includes
2 A. a camera configured to record a plurality of images; and
3 B. a strip selector module configured to select at least two image strips from respective ones of
4 the images, one of the selected image strips from each of the images being associated with
5 one of the respective series, the strip selector module being configured to control the
6 locations in the respective images from which the image strips are selected thereby to
7 provide the respective displacements.

1 47. A system as defined in claim 46 in which the strip selector module is configured to control the
2 locations in the respective images from which the image strips are selected by controlling the
3 separations of the image strips in the respective images.

1 48. A system as defined in claim 45 in which the strip generator module is configured to generate
2 at least some of said image strips using a selected computer graphics methodology.

1 49. A system as defined in claim 28 in which:

- 2 A. the strip generator module is further configured to generate a third series of image strips, all
3 of said image strips in said third series comprising strips of a series of images of a scene as
4 would be recorded by a camera, the image strips of the third series being displaced from the
5 image strips of the other two series by another selected displacement; and
- 6 B. the mosaic image generator module is further configured to mosaic the third series of images
7 strips together thereby to construct a third panoramic mosaic image, a selected two of the
8 panoramic mosaic images comprising the stereoscopic panoramic mosaic image pair.

1 *23* 30. A system as defined in claim 28 in which:

- 2 A. the strip generator module is further configured to generate camera position information
3 representing positions of the camera associated with the respective image strips; and
- 4 B. the mosaic image generator module is further configured to use the camera position
5 information in constructing the panoramic mosaic images.

1 *24* 31. A system as defined in claim 28 in which the mosaic image generator module is configured to
2 generate at least one of the panoramic mosaic images by measuring image motion between
3 successive image strips using a selected computer vision technique.

4 *25* 32. A system for generating a stereoscopic panoramic mosaic image pair comprising:

- 5 A. a strip generator module configured to generate two series of image strips, all of said image
6 strips in each series comprising strips of a series of images of a scene as would be recorded
7 by a camera from a respective series of positions relative to the scene, the image strips of the
8 respective series representing strips of the respective images displaced from one another by
9 at least two selected displacements;
- 10 B. a mosaic image generator module configured to mosaic the respective series of images strips
11 together thereby to construct two panoramic mosaic images, the panoramic mosaic images
12 comprising the stereoscopic panoramic mosaic image pair providing a stereoscopic image
13 of the scene.

1 *26* 33. A system as defined in claim 32 in which the strip generator module includes

- 2 A. a camera configured to record a plurality of images; and
 3 B. a strip selector module configured to select at least two image strips from respective ones of
 4 the images, one of the selected image strips from each of the images being associated with
 5 one of the respective series, the strip selector module being configured to control the
 6 locations in the respective images from which the image strips are selected thereby to
 7 provide the respective displacements.

1 *21* 34. A system as defined in claim *25* 52 in which the strip generator module is configured to generate
 2 at least some of said image strips using a selected computer graphics methodology.

1 *20* 35. A system as defined in claim *25* 52 in which:

- 2 A. the strip generator module is further configured to generate a third series of image strips, all
 3 of said image strips in said third series comprising strips of a series of images of a scene as
 4 would be recorded by a camera, the image strips of the third series being displaced from the
 5 image strips of the other two series by another selected displacement; and
 6 B. the mosaic image generator module is further configured to mosaic the third series of images
 7 strips together thereby to construct a third panoramic mosaic image, a selected two of the
 8 panoramic mosaic images comprising the stereoscopic panoramic mosaic image pair.

1 *29* 36. A system for displaying a stereo panoramic image to a viewer, said system comprising:

- 2 A. a panoramic screen;
 3 B. a plurality of projectors each disposed to project a respective portion of one of a plurality
 4 panoramic images in overlapping fashion on the screen, each panoramic image being for
 5 viewing by a respective one of a viewer's eyes; and
 6 C. a viewing arrangement for facilitating transmission of a respective one of said images to each
 7 of the viewer's eyes thereby to facilitate stereoscopic viewing of the panoramic image
 8 defined by the panoramic images.

1 *29* 37. A system as defined in claim *29* 36 in which:

- 2 A. the respective panoramic images are polarized with orthogonal polarizations; and

- 3 B. the viewing arrangement comprises a pair of lenses polarized with corresponding orthogonal
4 polarizations.

1 *31* 58. A system as defined in claim *29* 56 in which:

- 2 A. the respective panoramic images are of different colors; and
3 B. the viewing arrangement comprises a pair of lenses having the corresponding colors.

1 *32* 59. A system for displaying a stereo panoramic image to a viewer, said system comprising:

- 2 A. a panoramic screen;
3 B. a plurality of projectors each configured to project a respective portion of a panoramic image
4 on the screen, the panoramic image comprising alternating portions of panoramic images
5 each to be alternatingly viewed by respective ones of a viewers eyes; and
6 C. a viewing arrangement for facilitating alternating transmission of the respective alternating
7 portions to respective ones of the viewer's eyes thereby to facilitate stereoscopic viewing of
8 the panoramic image.

1 *33* 60. A system as defined in claim *32* 59 in which the viewing arrangement comprises a pair of lenses,
2 each lens being associated with a shutter, the shutters being configured to alternatingly open and
3 close in synchrony with the display of the respective alternating portions.

1 *34* 61. A method of generating a stereoscopic panoramic mosaic image pair comprising the steps of:

- 2 A. a strip generation step of generating two series of image strips, all of said image strips in
3 each series comprising strips of a series of images of a scene as would be recorded by a
4 camera from a respective series of positions relative to the scene, the image strips of the
5 respective series representing strips of the respective images displaced from one another by
6 at least one selected displacement; and
7 B. a mosaic image generation step of mosaicing the respective series of images strips together
8 thereby to construct two panoramic mosaic images, the panoramic mosaic images comprising
9 the stereoscopic panoramic mosaic image pair providing a stereoscopic image of the scene
10 as recorded over the path.

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1 62. A method as defined in claim 61 in which the series of positions define a path at least a portion
2 of which corresponds to a circular arc.

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1 63. A method as defined in claim 61 in which the series of positions define a path at least a portion
2 of which corresponds to a straight line.

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1 64. A method as defined in claim 61 in which the series of positions define a translation relative to
2 the scene.

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1 65. A method as defined in claim 61 in which the series of positions define a change in angular
2 orientation relative to the scene.

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1 66. A method as defined in claim 61 in which the image strips are parallel to an axis defined for the
2 respective image.

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1 67. A method as defined in claim 66 in which the axis is horizontal.

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1 68. A system as defined in claim 66 in which the axis is vertical.

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1 69. A method as defined in claim 61 in which the strip generation step includes the step of using a
2 camera configured to record at least one image strip.

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1 70. A method as defined in claim 69 in which the strip generation step includes the step of using a
2 camera configured to record a plurality of image strips from both series.

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1 71. A method as defined in claim 70 in which the strip generation step includes the step of using a
2 plurality of cameras configured to record at least image strips from both series, the plurality of
3 cameras being disposed at respective positions along the path.

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1 ⁴⁵ 72. A method as defined in claim 69 in which the strip generation step further includes the steps of
 2 A. using a reflector configured to reflect images of the scene to the camera for recording
 3 thereby; and

4 B. positioning the reflector at at least one position to facilitate definition of the path.

1 ⁴⁵ 73. A method as defined in claim 72 in which the reflector has at least one flat portion.

1 ⁴⁵ 74. A method as defined in claim 72 in which the reflector has at least one flat portion.

1 ⁴⁵ 75. A method as defined in claim 72 in which the reflector positioning step includes the step of
 2 positioning the reflector at a plurality of positions to facilitate definition of the path.

1 ³⁴ 76. A method as defined in claim 61 in which the strip generation step includes the step of
 2 generating at least one image strip using a selected computer graphics methodology.

1 ⁴⁹ 77. A method as defined in claim 76 in which the strip generation step includes the step of
 2 generating a plurality of image strips, at least one of the plurality of image strips being generated
 3 using the selected computer graphics methodology.

1 ⁴⁹ 78. A method as defined in claim 76 in which the strip generation step includes the step of
 2 generating the two series of image strips such that the displacement varies as between at least two
 3 images.

1 ⁵¹ 79. A method as defined in claim 78 in which the strip generation step includes the steps of
 2 A. using a camera to record a plurality of images; and
 3 B. a strip selection step of selecting at least two image strips from respective ones of the images,
 4 one of the selected image strips from each of the images being associated with one of the
 5 respective series, the strip selection step including the step of controlling the locations in the
 6 respective images from which the image strips are selected thereby to provide the respective
 7 displacements.

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 1 80. A method as defined in claim 79 in which the strip selection step includes the step of controlling
 2 the locations in the respective images from which the image strips are selected by controlling the
 3 separations of the image strips in the respective images.

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 1 81. A method as defined in claim 78 in which the strip generation step includes the step of
 2 generating at least some of said image strips using a selected computer graphics methodology.

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 1 82. A method as defined in claim 61 in which:

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 2 A. the strip generation step includes the step of generating a third series of image strips, all of
 3 said image strips in said third series comprising strips of a series of images of a scene as
 4 would be recorded by a camera, the image strips of the third series being displaced from the
 5 image strips of the other two series by another selected displacement; and
 6 B. the mosaic image generation step includes the step of mosaicing the third series of images
 7 strips together thereby to construct a third panoramic mosaic image, a selected two of the
 8 panoramic mosaic images comprising the stereoscopic panoramic mosaic image pair.

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 1 83. A method as defined in claim 61 in which:

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 2 A. the strip generation step includes the step of generating camera position information
 3 representing positions of the camera associated with the respective image strips; and
 4 B. the mosaic image generation step includes the step of using the camera position information
 5 in constructing the panoramic mosaic images.

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 1 84. A method as defined in claim 61 in which the mosaic image generation step includes the step of
 2 generate at least one of the panoramic mosaic images by measuring image motion between
 3 successive image strips using a selected computer vision technique.

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 1 85. A method for generating a stereoscopic panoramic mosaic image pair comprising:
 2 A. a strip generation step of generating two series of image strips, all of said image strips in
 3 each series comprising strips of a series of images of a scene as would be recorded by a

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camera from a respective series of positions relative to the scene, the image strips of the respective series representing strips of the respective images displaced from one another by at least two selected displacements; and

- B. a mosaic image generation step of mosaicing the respective series of images strips together thereby to construct two panoramic mosaic images, the panoramic mosaic images comprising the stereoscopic panoramic mosaic image pair providing a stereoscopic image of the scene.

86. A method as defined in claim 85 in which the strip generation step includes the steps of

- A. using a camera to record a plurality of images; and

- B. a strip selection step of selecting at least two image strips from respective ones of the images, one of the selected image strips from each of the images being associated with one of the respective series, the strip selection step including the step of controlling the locations in the respective images from which the image strips are selected thereby to provide the respective displacements.

87. A method as defined in claim 86 in which the strip selection step includes the step of controlling the locations in the respective images from which the image strips are selected by controlling the separations of the image strips in the respective images.

88. A method as defined in claim 85 in which the strip generation step includes the step of generating at least some of said image strips using a selected computer graphics methodology.

89. A method as defined in claim 85 in which:

- A. the strip generation step includes the step of generating a third series of image strips, a third series of image strips, all of said image strips in said third series comprising strips of a series of images of a scene as would be recorded by a camera, the image strips of the third series being displaced from the image strips of the other two series by another selected displacement; and

B. the mosaic image generation step includes step of mosaicing the third series of images strips together thereby to construct a third panoramic mosaic image, a selected two of the panoramic mosaic images comprising the stereoscopic panoramic mosaic image pair.

63 90. A method as defined in claim 85 in which:

A. the strip generation step includes the step of generating camera position information representing positions of the camera associated with the respective image strips; and

B. the mosaic image generation step includes the step of using the camera position information in constructing the panoramic mosaic images.

64 91. A method as defined in claim 85 in which the mosaic image generation step includes the step of generate at least one of the panoramic mosaic images by measuring image motion between successive image strips using a selected computer vision technique.

65 92. A method of displaying a stereo panoramic image to a viewer on a panoramic screen, said method comprising the steps of:

A. using a plurality of projectors each disposed to project a respective portion of one of a plurality panoramic images in overlapping fashion on the screen; and

C. using a viewing arrangement to facilitate transmission of a respective one of said images to each of the viewer's eyes thereby to facilitate stereoscopic viewing of the panoramic image defined by the respective panoramic images.

66 93. A method as defined in claim 92 in which:

A. the respective panoramic images are polarized with orthogonal polarizations; and

B. the viewing arrangement using step includes the step of using a viewing arrangement that comprises a pair of lenses polarized with corresponding orthogonal polarizations.

67 94. A method as defined in claim 92 in which:

A. the respective panoramic images are of different colors; and

3 B. the viewing arrangement using step includes the step of using a viewing arrangement that
4 comprises a pair of lenses having the corresponding colors.

1 95. A method displaying a stereo panoramic image to a viewer on a panoramic screen, said method
2 comprising the steps of:

3 A. using a plurality of projectors each configured to project a respective portion of a panoramic
4 image on the screen, the panoramic image comprising alternating portions of panoramic
5 images each to be alternatingly viewed by respective ones of a viewers eyes; and
6 C. using a viewing arrangement for facilitating alternating transmission of the respective
7 alternating portions to respective ones of the viewer's eyes thereby to facilitate stereoscopic
8 viewing of the panoramic image.

1 96. A method as defined in claim 95 in which the viewing arrangement comprises a pair of lenses,
2 each lens being associated with a shutter, the method including the step of controlling the shutters
3 to alternatingly open and close in synchrony with the display of the respective alternating portions.

1 97. A computer program product for use in connection with a computer to provide a system for
2 generating a stereoscopic panoramic mosaic image pair, the computer program product comprising
3 a computer-readable medium having encoded thereon:

4 A. a strip generator module configured to enable the computer to generate two series of image
5 strips, all of said image strips in each series comprising strips of a series of images of a scene
6 as would be recorded by a camera from a respective series of positions relative to the scene,
7 the image strips of the respective series representing strips of the respective images displaced
8 from one another by at least one selected displacement; and
9 B. a mosaic image generator module configured to enable the computer to mosaic the respective
10 series of images strips together thereby to construct two panoramic mosaic images, the
11 panoramic mosaic images comprising the stereoscopic panoramic mosaic image pair
12 providing a stereoscopic image of the scene as recorded over the path.

1 71 98. A computer program product as defined in claim 97 in which the series of positions define a path
2 at least a portion of which corresponds to a circular arc.

1 72 99. A computer program product as defined in claim 97 in which the series of positions define a path
2 at least a portion of which corresponds to a straight line.

1 73 100. A computer program product as defined in claim 97 in which the series of positions define a
2 translation relative to the scene.

1 74 101. A computer program product as defined in claim 97 in which the series of positions define a
2 change in angular orientation relative to the scene.

1 75 102. A computer program product as defined in claim 97 in which the image strips are parallel to
2 an axis defined for the respective image.

1 76 103. A computer program product as defined in claim 102 in which the axis is horizontal.

1 77 104. A computer program product as defined in claim 102 in which the axis is vertical.

1 78 105. A computer program product as defined in claim 97, the system further including a camera
2 configured to record an image including at least one image strip, the strip generator module being
3 further configured to enable the computer to generate the at least one image strip from the image.

1 79 106. A computer program product as defined in claim 105 in which the camera is configured to
2 record a plurality of images each including at least one image strip from both series, the strip
3 generator module being further configured to enable the computer to generate the respective image
4 strips from the respective images.

1 107. A computer program product as defined in claim 106 in which system includes a plurality of
2 cameras configured to record at least image strips from both series, the plurality of cameras being
3 disposed at respective positions along the path.

1 108. A computer program product as defined in claim 105 in which
2 A. the system further includes a reflector configured to reflect images of the scene to the camera
3 for recording thereby; and
4 B. the strip generator module further includes a reflector position control module configured to
5 enable the computer to enable the reflector to be positioned at at least one position to
6 facilitate definition of the path.

1 109. A computer program product as defined in claim 108 in which the reflector has at least one flat
portion.

1 110. A computer program product as defined in claim 108 in which the reflector has at least one flat
2 portion.

1 111. A computer program product as defined in claim 108 in which the reflector position control
2 module is configured to enable the computer to enable the reflector to be positioned at a plurality
3 of positions to facilitate definition of the path.

1 112. A computer program product as defined in claim 97 in which the strip generator module is
2 configured to enable the computer to generate at least one image strip using a selected computer
3 graphics methodology.

1 113. A computer program product as defined in claim 112 in which the strip generator module is
2 configured to enable the computer to generate a plurality of image strips, at least one of the plurality
3 of image strips being generated using the selected computer graphics methodology.

1 114. A computer program product as defined in claim 97 in which the strip generator module is
 2 configured to enable the computer to generate generate the two series of image strips such that the
 3 displacement varies as between at least two images.

1 115. A computer program product as defined in claim 114 in which:
 2 A. the system includes a camera configured to record a plurality of images; and
 3 B. the strip generator module includes a strip selector module configured to enable the computer
 4 to select at least two image strips from respective ones of the images, one of the selected
 5 image strips from each of the images being associated with one of the respective series, the
 6 strip selector module being configured to enable the computer to control the locations in the
 7 respective images from which the image strips are selected thereby to provide the respective
 8 displacements.

1 116. A computer program product as defined in claim 115 in which the strip selector module is
 2 configured to enable the computer to control the locations in the respective images from which the
 3 image strips are selected by controlling the separations of the image strips in the respective images.

1 117. A computer program product as defined in claim 114 in which the strip generator module is
 2 configured to enable the computer to generate at least some of said image strips using a selected
 3 computer graphics methodology.

1 118. A computer program product as defined in claim 97 in which:
 2 A. the strip generator module is further configured to enable the computer to generate a third
 3 series of image strips, all of said image strips in said third series comprising strips of a series
 4 of images of a scene as would be recorded by a camera, the image strips of the third series
 5 being displaced from the image strips of the other two series by another selected
 6 displacement; and
 7 B. the mosaic image generator module is further configured to enable the computer to mosaic
 8 the third series of images strips together thereby to construct a third panoramic mosaic

9 image, a selected two of the panoramic mosaic images comprising the stereoscopic
10 panoramic mosaic image pair.

1 *96* 119. A computer program product as defined in claim *97* in which:

2 A. the strip generator module is further configured to enable the computer to generate camera
3 position information representing positions of the camera associated with the respective
4 image strips; and

5 B. the mosaic image generator module is further configured to enable the computer to use the
6 camera position information in constructing the panoramic mosaic images.

1 *93* 120. A computer program product as defined in claim *97* in which the mosaic image generator
2 module is configured to enable the computer to generate at least one of the panoramic mosaic images
3 by measuring image motion between successive image strips using a selected computer vision
4 technique.

1 *94* 121. A computer program product for use in connection with a computer to provide a system for
2 generating a stereoscopic panoramic mosaic image pair, the computer program product comprising
3 a computer readable medium having encoded thereon:

4 A. a strip generator module configured to enable the computer to generate two series of image
5 strips, all of said image strips in each series comprising strips of a series of images of a scene
6 as would be recorded by a camera from a respective series of positions relative to the scene,
7 the image strips of the respective series representing strips of the respective images displaced
8 from one another by at least two selected displacements;

9 B. a mosaic image generator module configured to enable the computer to mosaic the respective
10 series of images strips together thereby to construct two panoramic mosaic images, the
11 panoramic mosaic images comprising the stereoscopic panoramic mosaic image pair
12 providing a stereoscopic image of the scene.

1 *95* 122. A computer program product as defined in claim *121* in which

2 A. the system includes a camera configured to record a plurality of images; and

3 B. the strip generator module includes a strip selector module configured to enable the computer
4 to select at least two image strips from respective ones of the images, one of the selected
5 image strips from each of the images being associated with one of the respective series, the
6 strip selector module being configured to control the locations in the respective images from
7 which the image strips are selected thereby to provide the respective sets of angles.

90 123. A computer program product as defined in claim 122 in which the strip selector module is
2 configured to enable the computer to control the locations in the respective images from which the
3 image strips are selected by controlling the separations of the image strips in the respective images.

91 124. A computer program product as defined in claim 121 in which the strip generator module is
2 configured to enable the computer to generate at least some of said image strips using a selected
3 computer graphics methodology.

92 125. A computer program product as defined in claim 121 in which:

2 A. the strip generator module is further configured to enable the computer to generate a third
3 series of image strips, all of said image strips in said third series comprising strips of a series
4 of images of a scene as would be recorded by a camera, the image strips of the third series
5 being displaced from the image strips of the other two series by another selected
6 displacement; and

7 B. the mosaic image generator module is further configured to enable the computer to mosaic
8 the third series of images strips together thereby to construct a third panoramic mosaic
9 image, a selected two of the panoramic mosaic images comprising the stereoscopic
10 panoramic mosaic image pair.

93 126. A computer program product as defined in claim 121 in which:

2 A. the strip generator module is further configured to enable the computer to generate camera
3 position information representing positions of the camera associated with the respective
4 image strips; and

5 B. the mosaic image generator module is further configured to enable the computer to use the
6 camera position information in constructing the panoramic mosaic images.

1 10 127. A computer program product as defined in claim 121 in which the mosaic image generator
2 module is configured to enable the computer to generate at least one of the panoramic mosaic images
3 by measuring image motion between successive image strips using a selected computer vision
4 technique.

B. Marked-Up Version Of Amended Portion(s) Of Application To Show Changes Made

In the Claims

The changes made to the previously-pending claims are: the cancellation of claims 1-27 and the addition of new claims 28-127.

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